Inasmuch as claims 18-31, 43, 32-40, 44 and 45 have been canceled herein, the rejection of those claims under 35 U.S.C. § 103(a) is now moot. Applicants have, however, reserved their right to pursue these claims in a continuing application.

The remaining claims 1, 2, 4-17, 41 and 42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fedder in view of Teka, Noschese, Swamy, Romine, Seidler, Feldman, Apap, Johary, Bitaillou, and Kandybowski. These claims also stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kandybowski in view of Johary, Apap, Swamy, Teka, Romine, Bitaillou, and Noschese. Reconsideration is respectfully requested.

As recited in independent claim 1, the present invention is directed to an electrical connector in which signal contacts that have a mating portion with "an elongated cross-section" are arranged transversely between the elongated cross-sections of ground or power contacts, such that "**one end** of said elongated cross-section [of a given signal contact] is located adjacent **one of said ground or power contacts** and **an opposite end** of said elongated cross-section is located adjacent **another one of said ground or power contacts**." (emphasis added). This structure forms a novel I-beam geometry with respect to each signal contact. As explained previously, this I-beam geometry places the signal contacts generally transverse to the ground/power contacts to provide a strong loading of the signal contacts through the ground/power contacts and a light loading between adjacent signal contacts. This light loading between adjacent signal contacts provides improved cross-talk performance, in particular a low rise time cross-talk product. This leads to the ability to increase the signal density (or, decrease the pitch between signal contacts).

The Office Action asserts that both Fedder and Kandybowski show Applicants' claimed I-beam geometry. With respect to Fedder, for example, the Office Action asserts that "the Fedder contacts 104 are seen to have an elongated shape transversely of ground contacts 110." Applicants respectfully submit that neither Fedder, Kandybowski, nor any of the other cited art teaches or suggests Applicants' claimed I-beam geometry.

Figure 12 of Fedder is a cross-section of the connector of Figure 10 taken along line 12--12. As shown in Figure 12, when the two halves of the connector are engaged, the signal contacts 104 of one half of the connector mate together with the signal pins 54 in the other half to form an elongated cross-section that is actually *parallel* to the plane of the ground contacts 115 (mistakenly labeled in Fig. 12 as "15"). Thus, to the extent that the signal contacts of Fedder

mate to form an elongated cross-section, that elongated cross-section is *not* arranged *transversely* between the elongated cross-sections of the ground or power contacts, as recited in claim 1. Applicants respectfully submit, therefore, that claim 1 patentably defines over the Fedder reference, alone or in combination with any of the other cited art.

Nor does Kandybowski, the other primary reference relied upon in the Office Action, teach or suggest Applicants' claimed I-beam geometry. Kandybowski teaches a single row of ground contacts (76) disposed between two rows of signal pins (50), in each half of a double connector. Because the single row of ground contacts is disposed between two rows of signal pins, even assuming that the signal pins had an elongated cross-section (which they do not), it is not possible for both ends of that elongated cross section to be located adjacent to a different ground or power contact, as required by the claims. With but one row of ground contacts, it is only possible for one end of any such elongated cross-section to be located adjacent a ground or power contact. Applicants respectfully submit, therefore, that claim 1 patentably defines over the Kandybowski reference, alone or in combination with the other art of record.

Because neither Fedder, Kandybowski, nor any of the other cited art teaches or suggests the novel I-beam geometry recited in claim 1, Applicants respectfully submit that claim 1 patentably defines over the art of record. Moreover, Applicants maintain that the cited art does not teach or suggest the additional feature recited in claim 1 of "a plurality of solder masses, each secured to a respective one of said mounting ends of said plurality of ground or power contacts and said plurality of signal contacts for securing the connector to the substrate," particularly in combination with the novel I-beam geometry also recited in that claim. Inasmuch as claims 2, 4-17, 41 and 42 depend either directly or indirectly from claim 1, Applicants respectfully submit that they too patentably define over the prior art for the same reasons. Reconsideration of the Section 103(a) rejection of claims 1, 2, 4-17, 41 and 42 is therefore respectfully requested.

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Applicants have submitted herewith a Supplemental Information Disclosure Statement. Please note that most of the references cited therein are already of record as a result of having been cited in the parent applications in this case. However, for the Examiner's convenience, new copies of all of the references have been provided.

CONCLUSION

For all the foregoing reasons, Applicants submit that the present application is now in condition for allowance. Reconsideration of the Office Action and an early Notice of Allowance are respectfully solicited.

Respectfully submitted,

Date: December 28, 2001

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claims 18-20, 22-40, and 43-45 have been canceled.

IN THE SPECIFICATION:

The paragraph at page 14, line 19 in the originally filed specification has been further amended as follows:

-- Referring to Figures 28-31, a receptacle which mates with the plug 420 is shown generally at numeral 456. This receptacle includes a base section dielectric 458, a peripheral bevelled edge 460 and rows of metallic pin receiving recesses as at 462, 464, 466, 468 and 470. Metallic grounding or power elements receiving structures 472, 474, 476, 478, 480 and 482 are interposed between the rows of pin receiving recesses. On its bottom, or mounting, side the receptacle also includes alignment and mounting pins 484 and 486 which enter corresponding openings (not shown) in a substrate (not shown) during mounting. Further, the bottom side of the receptacle includes rows of solder conductive pads to which solder masses, such as the solder balls 488 and 490 shown in Figure 30, secure (*i.e.*, are fused). As seen in Figure 33, the solder conductive pad of contact 470 is an angled portion [456] <u>457</u> which resides in a recess 459 in the base. As customary in ball grid array assemblies, solder balls 488, 490, once reflowed, secure receptacle 456 to a substrate (not shown). From Figures 32-33 it will be observed that the same I-beam geometry as was described above is available with this arrangement. --